REMARKS

Initially, the Examiner's grant of an interview on November 19, 2003 has been appreciated. As discussed at the close of that interview, this Response presents the Applicant's arguments in formal, written form.

Paper No. 25 rejects all of pending claims 6-13 under 35 U.S.C. §103(a). Specifically, the claims are rejected as purportedly obvious over the Applicant's admitted prior art (AAPA) in view of the previously-cited Arevalo patent, and further in view of U.S. Patent 5,737,665 to Sugiyama, et al. The rejection is respectfully traversed.

The rejection is untenable because it improperly relies upon hindsight in combining the AAPA with Arevalo (and Sugiyama, et al.). The AAPA teaches, to those of ordinary skill in the art, a conventional potential correction technique for adjusting laser exposure intensity in an image forming apparatus. The AAPA is specific in describing the technique as involving a first step of dark potential correction, followed by one or more steps of residual potential correction. According to the AAPA, in the first residual potential correction step, an arbitrary laser intensity is set and then the photoreceptor is exposed. Thereafter, the potential is measured. This results in a point representative of the measured potential versus laser intensity which can be plotted as shown in the attached Exhibit 1, which comes from Figure 6 in the present application. For simplicity, this point is labeled in Exhibit 1 as point (1, 2). The AAPA does not describe any additional sources or alternative procedures to this basic technique. Applicant criticizes the AAPA as requiring a large number of iterations and therefore long processing time in order to accomplish the correction.

Arevalo, on the other hand, is directed to a method and an apparatus for phase shifting. There is no suggestion in Arevalo that any teaching therein would have any benefit, or indeed any application, in a method for adjusting laser exposure intensity in an image forming apparatus. As stated above, nor is there any description in the AAPA to look beyond the process described thereby. Thus, neither the AAPA nor Arevalo contains any suggestion or motivation for those of ordinary skill in the art to have looked to any part of the Arevalo disclosure in optimizing a potential correction process for an electrophotographic digital image forming apparatus. There simply is no suggestion that any teaching from a patent directed to phase shifting would be applicable to potential correction in such an apparatus. Therefore, Applicant courteously urges that the asserted combination of the AAPA and Arevalo improperly is based upon hindsight learned from Applicant's own specification.

This conclusion is compelled from a more detailed look at the teachings of each of the AAPA and Arevalo. First, consider the problem that Applicant solves with his claimed invention, that is, determination of a potential value along what Applicant recognizes to be a non-linear relationship between laser intensity and residual potential value. Applicant's objective is to locate this value within significantly shorter processing times than required for the AAPA conventional method. The AAPA taught those of ordinary skill in the art to use a linear equation previously obtained through experimentation. (See Applicant's specification, paragraph bridging pages 4 and 5.). A segment along such linear equation is shown by the line in Figure 6 and Exhibit 1. Thus, again with regard to Exhibit 1, those of

ordinary skill would have plotted the point (1, 2). This point would give the parameter "b" in the equation for a straight line:

$$y = mx + b.$$

Through prior experimentation, the slope "m" already would have been known, whereafter the equation for "y" is evident once "b" was located by exposure and measurement during the first residual potential correction step which determined point (1, 2).

Notwithstanding the vast difference in subject matter between the AAPA and Arevalo , Applicant looks to Arevalo's initialization algorithm as described at column 5, beginning at line 44, and illustrated in Arevalo's Figure 4. To the teaching of the AAPA, Arevalo would add assignment of arbitrary lower and upper laser intensity values in order to define a range such as also shown in Exhibit 1. Thereafter, Arevalo's algorithm proceeds with the division of the range in half, and the selection of one point nearest the middle of each half-range for use as new intensity input values. The intensity value corresponding to the better-performing point is determined and this half of the range becomes a new range whereupon a new midpoint is set therein, and two new test points are chosen near the middle of each new half- range.

In combination with the teaching of the AAPA, therefore, the Arevalo algorithm operates to define progressively narrow ranges along the line in Exhibit 1. There is no suggestion, however, in either the AAPA or Arevalo, that modification of the AAPA to include Arevalo's algorithm would, in any way, reduce processing time. Moreover, due to

problems in drift of the potential value[1], the AAPA, if modified according to Arevalo may never locate the desired potential when the potential lies on the non-linear curve shown in both Figures 3 and 6 of the application, and Exhibit 1. Thus, there is no teaching or suggestion from either the AAPA or Arevalo (and none added by the newly-cited Sugiyama, et al. patent) to carry out Arevalo's algorithm to enhance processing speed in the AAPA technique, or to locate potential values on any curve other than the experimentally-determined linear equation taught by the AAPA. For these reasons, the rejection is respectfully urged as improperly based upon hindsight, and withdrawal thereof earnestly is solicited.

In view of the foregoing comments, Applicant courteously urges that all of claims 6-13 are allowable over the AAPA, the Arevalo patent, and the Sugiyama, et al. patent. Further action in this application, consistent with the foregoing, courteously is solicited.

Respectfully submitted,
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[1] See Applicant's Response To Paper No. 14 of January 9, 2002 (pages 3-5) which discusses the phenomenon of potential drift and its implications for potential correction in detail.